REMARKS/ARGUMENTS

Claims 1, 3-7, 10-22, 24-28, 30-43 and 46-50 are pending in the application. Applicants believe that the present application is in condition for allowance, and respectfully request reconsideration of the rejection in light of the remarks set forth below.

Claim Rejections – 35 USC § 103

Claims 1, 3-4, 7, 10, 14, 19-20, 22, 24, 27-28, 42-43, 46 and 50 were rejected under 35 U.S.C. § 103 as being unpatentable over Rich (U.S. 5,940,452) (hereinafter "Rich") in view of Admitted Prior Art on paragraphs 1002-1005 of the instant application (hereinafter "APA"). Claims 16-18, 21, 25-26, 30-32, 34-35 and 36-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rich in view of the APA, and further in view of Willey (U.S. 6,505,058) (hereinafter "Willey"). Reconsideration and withdrawal of these rejections are respectfully requested.

Claim 1 is directed to an apparatus for use in a communication system. The apparatus comprises a receiver, including a plurality of receiver chains adapted for processing in the receiver, for receiving a pilot channel and determining a channel condition of the pilot channel. The apparatus further comprises a control system for controlling receive diversity and power consumption of the receiver by selecting a number of the plurality of receiver chains based on the determined channel condition, wherein the control system is configured for reducing the number of selected receiver chains when the determined channel condition is above a first channel condition threshold.

Applicants submit that Rich does not teach or suggest at least the feature of a control system for controlling receive diversity and power consumption of the receiver by selecting a number of a plurality of receiver chains based on the determined channel condition, as recited in claim 1.

Rich discloses a radio system 100 comprising a first antenna 114, a second antenna 116, a single receiver 126 common to both antennas 114 and 116 and a controller 108. See Figure 1 of Rich. The radio system 100 operates in one of three selected states, in which only the first antenna 114, only the second antenna 116 or both antennas 114, 116 are coupled to the single receiver 126. See col. 11, lines 10-17. Thus, the radio system 100 in Figure 1 of Rich selectively changes the number of antennas 114 and 116 coupled to a single receiver 126, and does not

selectively change a number of receiver chains for controlling receive diversity. Even assuming that the receiver 126 of Rich represents a receiver chain, Rich does not disclose more than a single receiver chain in this embodiment. For at least the reasons given above, Rich is not seen to teach or suggest at least the feature of a control system for controlling receive diversity and power consumption of the receiver by selecting a number of a plurality of receiver chains based on the determined channel condition, as recited in claim 1.

The Office Action admits that Rich does not disclose receiver chain. See page 4, line 3 of the Office Action. To cure this admitted deficiency of Rich, the Office Action relies on Applicants' disclosure in paragraph [1002] of the specification by treating Applicants' disclosure as Admitted Prior Art. More particularly, the Office Action relies on Applicant's disclosure:

> A receiver chain for signals received at each antenna may be necessary. Therefore, multiple receiver chains may be necessary to exploit the multipath signals received at multiple receive antennas.

See paragraph [1002] of the specification.

The Office Action appears to treat Applicants' disclosure as Admitted Prior Art simply because it is located in the background section of the specification. According to MPEP § 2129(II), "[w]here the specification identifies work done by another as "prior art," the subject matter so identified is treated as admitted prior art." (emphasis added). In the present case, the specification does not indentify the subject matter in Applicants' disclosure as prior art, and therefore it is improper to treat Applicants' disclosure as Admitted Prior Art.

Applicants further submit that Rich does not teach or suggest the additional feature wherein the control system is configured for reducing the number of selected receiver chains when the determined channel condition of the pilot channel is above a first channel condition threshold, as also recited in claim 1. Note that "said determined channel condition" recited in line 8 of claim 1 refers back to the "determining a channel condition of said pilot channel" recited in line 4 of claim 1. Thus, "said determined channel condition" recited in line 8 of claim 1 is the determined channel condition of the pilot channel.

The Office Action cites steps 202-206 in Figure 2 and col. 13, line 50 to col. 15, line 20 of Rich as allegedly teaching the above feature of claim 1. See pages 3 and 4 of the Office Action. Applicants respectfully disagree. The cited portion of Rich discloses steps that are performed when the integration of the received signal strength indication ($\int$RSSI) of the received

signal is greater than the predetermined threshold. However, the integration of the received signal strength indication (∫RSSI) is not a determined channel condition of a pilot channel. In Rich, the channel condition of the pilot channel is determined by the interference ratio (Ec/Io) of the pilot channel, which is different from the integration of the received signal strength indication (∫RSSI). See col. 4, lines 39-42 of Rich and Figure 1, reference numbers 144 and 142 of Rich. Therefore, the integration of the received signal strength indication (∫RSSI) being greater than the predetermined threshold of Rich cannot possibly disclose the feature wherein the control system is configured for reducing the number of selected receiver chains when the determined channel condition of the pilot channel is above a first channel condition threshold, as recited in claim 1.

For at least the reasons given above, Applicants submit that claim 1 is patentable over the applied references, and respectfully request that the rejection of claim 1 be withdrawn.

Independent claims 7, 42, 43, and 50 are also patentable for at least the reasons given above for claim 1.

Independent claim 14 is directed to a method in a communication system for decoding a quick paging channel (QPCH). The method comprises determining a channel condition of a pilot channel received at a mobile station in the communication system and determining receive diversity at a receiver of the mobile station by determining a number of a plurality of receiver chains of the receiver for receive diversity based on the determined channel condition. The method further comprises determining a first data bit of the QPCH received at the mobile station in accordance with processing of one or more signals produced based on the determined receive diversity, wherein power consumption of the receiver is controlled based on the receive diversity. None of the applied references, taken alone or in combination, teach or suggest the method of claim 14 for at least the reasons set forth below.

The method of claim 14 enhances the amount of power that is saved when using a QPCH by determining the first data bit of the QPCH received at the mobile in accordance with processing of one or more signals produced based on the determined receive diversity, wherein power consumption of the receiver is controlled based on the receive diversity. This is because an erroneously decoded QPCH bit can cause the receiver to erroneously wake up for a paging signal that is not present, resulting in a huge amount of wasted power. The determined receive diversity reduces decoding error for the first data bit of the QPCH by using a number of receiver chains to receive the first data bit of the QPCH when needed based on the determined channel

conditions. The reduction in the amount of power wasted by erroneous QPCH decoding offsets the additional power needed for receive diversity resulting in an overall reduction in power. Thus, the method of claim 1 enhances the power savings of QPCH. None of the applied references, taken alone or in combination, teach or suggest such a method for enhancing the power savings of QPCH.

Rich discloses a switched antenna diversity receiver that operates in one of three antenna states, in which only the first antenna 114, only the second antenna 116 or both antennas 114, 116 are coupled to a single receiver 126. See col. 11, lines 10-17. Rich also discloses a controller 108 that selects one of the three antenna states and places the receiver in the selected antenna state by controlling switches 118 and 120 to the antennas 114 and 116, respectively. See Figure 1 of Rich. Before selecting one of the antenna states based on receive diversity, the controller 108 of Rich compares the integration of the received signal strength indication (∫RSSI) of the received signal with a predetermined threshold and compares the level of the desired RF signal relative to the composite RF signal. See col. 13, line 55 to col. 14, line 49 and steps 202, 204 and 208 in Figure 2 of Rich. This requires that the receiver of Rich receive the desired RF signal for a period of time before determining receive diversity in order for the receiver of Rich to compute the integration of the received signal strength indication (∫RSSI) of the received signal and measure the level of the desired RF signal relative to the composite RF signal.

Applicants submit that Rich fails to teach the feature of determining receive diversity at a receiver of a mobile station by determining a number of a plurality of receiver chains of the receiver for receive diversity for similar reasons given above in connection with claim 1.

Rich also fails to teach the additional feature of determining a first data bit of a QPCH received at the mobile station in accordance with processing of one or more signals produced based on the determined receive diversity, as also recited in claim 14. Further, Applicants submit that one skilled in the art would not have combined the switched antenna diversity receiver of Rich with a QPCH to arrive at the above feature of claim 14 for at least the reasons given below.

As discussed above, the receiver of Rich needs to receive the desired RF signal for a period of time before determining which antenna state to use based on receive diversity. This is because the receiver of Rich needs to compute the integration of the received signal strength indication (∫RSSI) of the received signal and measure the level of the desired RF signal relative to the composite RF signal to make the receive diversity determination. As a result, the receiver

of Rich is unsuitable for determining diversity for a signal having a very short duration (e.g., a single bit), such as the first data bit of a QPCH. If the receiver of Rich were used to receive the first data bit of a QPCH, then the receiver of Rich would not receive the QPCH long enough to compute the integration of the received signal strength indication (∫RSSI) of the received signal, much less determine receive diversity using the ∫RSSI and receive the first data bit of the QPCH based on the determined receive diversity.

For at least the reasons given above, Applicants submit that claim 14 is patentable over the applied references, and respectfully request that the rejection of claim 14 be withdrawn.

Independent claims 19, 22, 27, 32, 34, 36 and 39 are also patentable for at least the reasons given above for claim 14.

Claim 22 is patentable for at least the reasons given for claim 14. Claim 22 is additionally patentable for at least the additional reasons given below.

Independent claim 22 is directed to a method for decoding a quick paging channel (QPCH) in a communication system. The method comprises determining a first data bit of the QPCH received at a receiver, including a plurality of receiver chains for receive diversity, in a mobile station in the communication system. The method further discloses determining receive diversity at the receiver of the mobile station when the determined first data bit is a one or an erasure, wherein the determining the receive diversity includes determining a number of the plurality of receiver chains for receive diversity based on a channel condition of a pilot channel received at the receiver, wherein power consumption of the receiver is controlled based on the receive diversity.

Thus, among its many features, the method of claim 22 includes the feature of determining receive diversity **when** the determined first data bit of the QPCH is a one or an erasure. None of the applied references, taken alone or in combination, teaches or suggests at least this additional feature of claim 22.

The Office Action did not address this feature of claim 22. Instead, the Office Action simply asserted that claim 22 has similar limitations as claims 14 and 16 and referred to the rejection of claims 14 and 16. However, the above feature of claim 22 is not in claims 14 and 16. More particular, neither claims 14 nor 16 include the feature of determining receive diversity **when** the determined first data bit of the QPCH is a one or an erasure, as recited in claim 22. Consequently, by simply referring to the rejection of claims 14 and 16 which do not include this

feature of claim 22, the Office Action failed to address this feature of claim 22. According to MPEP § 2143.03, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." (emphasis added). Because the Office Action failed to address the above feature of clam 22, Applicants submit that the Office Action failed to establish a prima facie case of obviousness for claim 22 for at least this reason.

Therefore, in addition to being patentable for the reasons given for claim 14, claim 22 is additionally patentable for at least the additional reasons given above.

Independent claims 36 is also additionally patentable for at least the additional reasons given for claim 22.

Claim 32 is patentable for at least the reasons given for claim 14. Claim 32 is additionally patentable for at least the additional reasons given below.

Claim 32 is directed to a method for decoding a quick paging channel (QPCH) in a communication system. The method comprises determining a first data bit of the QPCH received at a receiver, including a plurality of receiver chains for receive diversity, in a mobile station in the communication system and switching the mobile station to a sleep mode when the determined first data bit is a zero. The method also comprises determining a second bit of the QPCH received at the receiver when the first data bit of the QPCH is either a one or an erasure. The method further comprises determining receive diversity at the receiver of the mobile station when the determined second data bit is an erasure based on a channel condition of pilot channel received at the receiver, and directing the mobile station resources to receive a receive channel when the determined second data bit is a one, wherein power consumption of the receiver is controlled based on the receive diversity.

Thus, among its many features, the method of claim 32 includes the feature of determining receive diversity **when** the determined second data bit of the QPCH is an erasure. None of the applied references, taken alone or in combination, teaches or suggests at least this additional feature of claim 32.

The Office Action did not address this feature of claim 32. Instead, the Office Action simply asserted that claim 32 has similar limitations as claims 22 and 25 and referred to the rejection of claims 22 and 25. However, the above feature of claim 32 is not in claims 22 and 25. More particular, neither claims 22 nor 25 include the feature of determining receive diversity **when** the determined **second** data bit of the QPCH is an erasure, as recited in claim 32. Claim

22 recites the different feature of determining receive diversity **when** the determined **first** data bit of the QPCH is a one or an erasure, which the Office Action also failed to address, as discussed above. Consequently, the Office Action failed to address the above feature of claim 32. According to MPEP § 2143.03, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." (emphasis added). Because the Office Action failed to address the above feature of clam 32, Applicants submit that the Office Action failed to establish a prima facie case of obviousness for claim 32 for at least this reason.

Therefore, in addition to being patentable for the reasons given for claim 14, claim 32 is additionally patentable for at least the additional reasons given above.

Independent claim 34 is also additionally patentable for at least the additional reasons given for claim 32.

At least for these reasons, Applicants respectfully submit that the independent claims are patentable over the applied references. The pending dependent claims inherit the patentability of their respective independent claims and, as a result, also patentably distinguish over the cited references. For at least these reasons, Applicants respectfully request reconsideration and allowance of the claims.

Allowable Subject Matter

Applicants thank the Examiner's indication that claims 5-6, 11-13 and 47-49 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants maintain that independent claims 1, 7 and 43 from which claim 5-6, 11-13 and 47-49 depend, respectively, are allowable in their own right. Accordingly, no amendment is necessary at this time.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: June 11, 2010

By: _____
Larry Moskowitz, Reg. No. 42,911
(858) 651-4556

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 658-5787
Facsimile: (858) 658-2502